EM477 - Computer-Aided Design
Mechanism Design Project
Fall 2001

Guidance for Memorandum Report on Synthesis and Analysis of the Mechanism

Each team will submit a memorandum report that presents the synthesis and analysis of the rocker mechanism being developed for this project. The report should address the following areas:

- Mechanism Synthesis - a description of the mechanism synthesis parameters such as precision points and ground points and size requirements, and the resulting mechanism.
    - Justify the use of these parameters and describe how they were determined.
    - Explain how the mechanism will operate.
    - Be sure to include figures as needed to illustrate your descriptions.
- Position, Velocity and Acceleration Analysis - results of a position, velocity and acceleration analysis of the mechanism over its full range of operation.
    - The angular position, velocity and acceleration of the various links should be presented as a function of the input link position.
    - All assumptions regarding the specified motion (starting position, angular velocity and acceleration) of the input link should be clearly stated and justified.
    - Coupler curves showing the path of key points on the mechanism should be presented to demonstrate that the mechanism meets the required specifications. As a minimum, include plots of the position, velocity and acceleration history of the point on your mechanism that passes through the precision points.
    - Animations of the mechanism operation may also be included (save them as *.avi files in MathCAD).

The memorandum report (one per design team) is **due by 19 OCT 01**.
The grade for the memo report will count towards 20% of your semester grade.

Important tips to ensure a good grade-

Make sure that the memo report explains everything that is presented; don't just attach a collection of results to a cover memo.

Avoid attaching long MathCAD printouts that have the results hidden somewhere among the equations used to generate the results. Use the cut and paste features of MathCAD and Word to extract the key graphs from your worksheets and then include them in your report.

Don't wait until the last minute to try to put this together. All team members should proofread the memo before submitting it.

EM477 - MECHANISM DESIGN PROJECT
MEMORANDUM REPORT ON SYNTHESIS AND ANALYSIS

GRADE SHEET

TEAM MEMBERS:_____

SYNTHESIS (40 points)

Precision Points

Ground Points

Link Lengths

Description of mechanism operation

Figures

MECHANISM ANALYSIS (40 points)

Assumptions

       Position Range

       Input Angular Velocity

       Input Angular Acceleration

Results

       Position analysis of key tracer point(s)

       Velocity analysis

       Acceleration analysis

       Animation

FORMAT/PRESENTATION (20 points)

TOTAL